

**WALKING SURFACES, GUARDING FLOOR and WALL
OPENINGS, FIXED INDUSTRIAL STAIRS, and PORTABLE and
FIXED LADDERS
AFOSH STD 91-501, Chapter 7**

INTERIOR AND EXTERIOR SURFACES

Interior Walking and Working Surface:

1. Are all pieces of equipment and machinery arranged to permit an even flow of materials? (Reference **7.3.1.1.**)
2. Are machines positioned so it will not be necessary for an operator to stand in a passageway, aisle, or exit access? (Reference **7.3.1.1.1.**)
3. Are machines positioned to allow for easy maintenance, cleaning, and removal of scrap? (Reference **7.3.1.1.1.**)
4. Are passageways, aisles, and exit accesses provided to permit the free movement of employees bringing to and removing material from the shop? (Reference **7.3.1.1.2.**)
5. Are at least 18 inches provided for passageways through or between obstructions? (Reference **7.3.1.1.4.**)

Conditions:

6. Are floors kept in good condition and free of defects that endanger workers or interfere with the handling of materials? (Reference **7.3.1.2.**)
7. Are floors free of obstructions which could create a tripping hazard or hinder people leaving the area during emergencies? (Reference **7.3.1.2.**)
8. Are floors of all shops, service rooms, halls, and storerooms kept clean and free of slippery substances? (Reference **7.3.1.2.2.**)
9. Are drip or oil pans used whenever the possibility of spilling or dripping exists? (Reference **7.3.1.2.2.**)
10. When floors are being cleaned or finishing compounds are being applied, are signs posted to warn workers of a slipping hazard? (Reference **7.3.1.2.5.**)
 - a. Do the signs remain in place until the floors are dry?
 - b. Are these caution signs yellow with black lettering?

11. Are passageways, aisles, and exit accesses kept clear for easy access to emergency equipment and to enable fire fighters to reach a fire, if necessary? (Reference **7.3.1.2.7.**)

12. Are areas adjacent to fire sprinkler control valves, fuse boxes, and electrical switch panels clear and unobstructed? (Reference **7.3.1.2.7.**)

Loading Capacity:

13. Are signs identifying the floor load capacity permanently installed, in plain view of all workers? (Reference **7.3.1.3.**)

Floor Sloping, Drains, and Separators:

14. Are drains provided when floors are subject to water, moisture, flooding, or when wet processes are used? Are drains kept clear to prevent clogging? (Reference **7.3.1.4.**)

Illumination :

15. Are all aisles, passageways, and work areas adequately lighted? (Reference **7.3.1.5.**)

Guards for Floor and Wall Openings:

16. Are all floor openings, such as hatchways, chutes, pits, trap doors, manholes, and ladder ways properly guarded? (Reference **7.3.1.6.**)

17. Are all stairways and ladder way openings guarded by a standard railing and toe-boards on all open sides, except at the entrance of the opening? (Reference **7.3.1.6.1.2.**)

18. Are all open-sided floors, platforms, and runways 4 feet or more above the ground guarded on all open sides? (Reference **7.3.1.7.3.**)

19. Are grab handles installed on each side of the opening, when the operation requires reaching through or around the unprotected opening? (Reference **7.3.1.7.4.**)

20. Are the general specifications for standard railings and toeboards used? Is OSHA 1910.23 consulted for specific detail on construction and installation? (Reference **7.3.1.6.7.5.**)

EXTERIOR WALKING AND WORKING SURFACES

Loading Docks:

21. Are frequently used loading docks located away from principal streets and intersections? (Reference **7.3.2.1.**)

22. Are the surfaces of docks smooth, even, and their edges marked or highlighted? (Reference 7.3.2.1.1.)

23. Are the dock widths 2 feet wider than the widest vehicle or most common materials being transported? (Reference 7.3.2.1.2.)

Parking Lots:

24. Are the surfaces of parking lots smooth, free of pedestrian tripping hazards, and have good drainage? (Reference 7.3.2.2.)

25. Are entrances and exits free of obstructions that block a driver's or pedestrian's view of traffic? (Reference 7.3.2.2.)

Walkways:

26. Are exterior walkways kept clear of obstacles that block the right-of-way or present slipping and tripping hazards? (Reference 7.3.2.3.)

Grounds:

27. Do workers ensure materials are not stored, left under, or piled against buildings, doors, exits, or stairways? (Reference 7.3.2.4.1.)

28. Are poisonous or toxic plants prohibited for landscaping unless approved by the base medical services? (Reference 7.3.2.4.2.)

29. Are trees and bushes adjacent to walkways trimmed to permit a clear path for pedestrians? (Reference 7.3.2.4.2.)

Construction:

30. Is all construction work clearly identified by signs that can be read from at least 50 feet, in addition to barriers marked with reflective materials? (Reference 7.3.2.5.)

31. Are illuminating or warning flashers also used for easy sighting after dark? (Reference 7.3.2.5.)

FIXED INDUSTRIAL STAIRS AND RAMPS

Strength:

1. Are fixed stairs and ramps designed and built to carry a load of five times the normal live load anticipated? (Reference 7.4.2.2.)

Angle of Rise:

2. Are fixed stairs (not part of the exit access) installed at angles to the horizontal of between 30 and 50 degrees? (Reference **7.4.2.4.**)

Ramps:

3. Are ramps (not part of the exit access) installed following the guidance in **Table 7.2?** (Reference **7.4.2.5.**)

Width of Landings:

4. When the doors or gates open directly onto a stairway, is the available width of the landing wider than 20 inches? (Reference **7.4.2.6.**)

Vertical Clearance:

5. Where there is less than 7 feet of headroom over stairs, are obstructions padded? Where they cannot be padded, are they color coded with yellow or yellow-and-black stripes to highlight the hazard? (Reference **7.4.2.7.**)

6. In all cases, are caution signs used to warn people of low clearance? (Reference **7.4.2.7.**)

Grating:

7. Are open grating type treads used stairs which are not enclosed? (Reference **7.4.2.7.**)

Stair Railings and Guards:

8. Is every flight of fixed industrial stairs, with four or more risers, equipped with standard guardrails or standard handrails? (Reference **7.4.2.12.1.**)

9. Do stairs less than 44 inches wide, having both sides enclosed, have at least one handrail, preferably on the right side going down? (Reference **7.4.2.12.1.1.**)

10. Do stairs less than 44 inches wide, having one side open, have at least one guardrail on the open side? (Reference **7.4.2.12.1.1.**)

11. Do stairs less than 44 inches wide, having both sides open, have one guardrail on each side? (Reference **7.4.2.12.1.3.**)

12. Do stairs more than 44 inches wide but less than 88 inches wide have a handrail on each enclosed side and a guardrail on each open side? (Reference **7.4.2.12.1.4.**)

13. Do stairways 88 or more inches wide have one handrail on each enclosed side, one guardrail on each open side, and one intermediate guardrail built midway of the width? (Reference **7.4.2.12.1.5.**)

14. Are spiraling and winding stairs equipped with a handrail offset to stop people from walking on the parts of the treads that are less than 6 inches wide? (Reference **7.4.2.12.2.**)

Illumination:

15. Are stairs and ramps lighted so all treads and landings will be visible? (Reference **7.4.2.13.**)

Maintenance:

16. Are stairs and ramps kept clean, free of obstructions or slippery substances, and in good repair? (Reference **7.4.2.15.**)

17. Are slippery or worn treads and surfaces either replaced or made safe by coating them with non-slip surface materials? (Reference **7.4.2.15.3.**)

18. Are guardrails and handrails smooth, free of splinters or burrs, and securely mounted? (Reference **7.4.2.15.6.**)

FIXED LADDERS

Design and Installation:

1. Are fixed industrial stairs provided as a means of access to roofs, pits, silos, towers, tanks, and limited-access areas, where access is daily or during each shift for gauging, inspection, regular maintenance, etc.? (Reference **7.5.2.2.**)

Length:

2. Are ladders 20 feet or less of a continuous length? (Reference **7.5.2.2.1.**)

3. When ladders are more than 20 feet and of a continuous length, are the following requirements considered? : (Reference **3.2.2.1.1.**)

a. A landing platform is provided for a person to rest or gain access to another section of the ladder?

b. Platform is provided every 30 feet, or fraction thereof?

- c. The landing platform is not less than 24 inches wide by 30 inches long and equipped with standard railings?
 - d. Toeboards are provided where the hazard of objects falling is present?
4. Is adequate illumination provided when ladders are used under conditions of adequate visibility? (Reference 7.5.2.5.)

Access:

5. Where unauthorized use of a fixed ladder is a problem, such as in a public area, is the bottom 7 feet guarded? (Reference 7.5.2.6.)

Electric Lines:

6. Are electrical conductors not installed on or adjacent to fixed metal ladders, unless they are beyond reach and cannot be used as a handrail or grabbed in an emergency? Is the installation at least 5 feet from the ladder? (Reference 7.5.2.8.)

Iron-Rung Ladders:

7. Are iron-rung ladders built into the walls of each manhole over 12 feet deep? (Reference 7.5.2.9.)

Inspections:

8. Are formal, fully documented inspections of all fixed ladders accomplished upon installation and at least every 3 years thereafter? (Reference 7.5.3.1.)

Maintenance:

9. Are modifications to ladder components, safety climb devices, or related equipment approved by base CE, the property manager, and ground safety officials? (Reference 7.5.4.2.)

Ladder Use:

10. Do supervisors ensure climbers are trained according to criteria in paragraphs 7.5.6.1 – 7.5.6.8?

PORTABLE LADDERS

Requirements:

1. Do workers abstain from using metal ladders and wood ladders with metal reinforced side rails in areas where they could contact energized electrical circuits? (Reference **7.6.2.1.2.2.**)

Inspections:

2. Do supervisors make thorough visual inspections of ladders when the ladder is initially received and before the ladder is placed in service? (Reference **7.6.2.2.**)

3. Do workers perform an inspection of ladders prior to use? (Reference **7.6.2.2.**)

4. Are the following defects and damage looked for? :

a. Side rails, steps, rungs, or related hardware that are cracked, split, or deformed? (Reference **7.6.2.2.2.**)

b. Pulleys, cables, and ropes that bind or are frayed? (Reference **7.6.2.2.3.**)

c. Are hardware, fittings, and related equipment checked frequently and kept in proper working condition? (Reference **7.6.2.3.**)

d. Are all bolts and rivets in place and secured? (Reference **7.6.2.3.**)

e. Are joints between steps or rungs and the side rails tight? (Reference **7.6.2.3.**)

f. Are safety feet and other parts kept in good condition to ensure they work? (Reference **7.6.2.3.3.**)

Maintenance:

5. Are wood, metal, and plastic ladders coated with a suitable protective material when required? (Reference **7.6.2.3.4.**)

6. Are wood ladders not painted with an opaque coating, avoiding a cover-up of possible defects? (Reference **7.6.2.3.4.**)

7. When location demands, are metal ladders protected against corrosion? (Reference **7.6.2.3.4.**)

8. Are ladders with defects that cannot be immediately repaired removed from service and action taken to ensure they are scheduled for repair or destruction? (Reference **7.6.2.4.**)

9. Are danger tags used to warn workers that the ladder cannot be used? (Reference **7.6.2.4.**)

Personnel Training:

10. Are personnel who use ladders adequately trained by the supervisor in the care and use of different type ladders when a worker is first assigned? (Reference **7.6.2.4.**)

Care and Use of Ladders:

11. Are ladders stored in a way that provides easy access for inspection and permits their safe withdrawal for use? (Reference **7.6.2.5.1.3.**)

12. Are wood ladders stored in a location free from exposure to the elements, excessive heat, or dampness? (Reference **7.6.2.5.1.3.**)